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**HUGHES AIRCRAFT COMPANY**  
PULLERTON, CALIFORNIA

## BI-MONTHLY PROGRESS REPORT

FR 64-11-56.  
26 March 1964

ON

## COLLECTIVE PROTECTION EQUIPMENT

FOR THE

AN/MSG-4 SYSTEM

PHASES II AND III

DEVELOPMENT, FABRICATION, AND TEST

CONTRACT NO: DA 18-108 CML-6618 (AMC 28A)

REPORT PERIOD: Technical Report, 1 January to 29 February 1964  
(12th Report)TO:  
Commanding Officer  
U.S. Army Chemical Research and  
Development Laboratories  
Edgewood Arsenal, Maryland

ATTENTION: Contract Project Officer

## PHASES II AND III

The Phase II Contract, executed September 1962, authorizes the continued development of Collective Protection Equipment and further provides for delivery of additional items of related equipment and the performance of services encompassing the activities of Maintenance Engineering, Value Engineering, and Data Submittal.

Phase III, executed by Contract Modification No. 7, 19 June 1963 authorizes: (1) a feasibility study to evolve optimum designs of Collective Protection (CB) Equipment for the Radar Tracking Station, OA-2952/GSQ; the Missile Integration Terminal Equipment, AN/TSQ-58, and the Maintenance Shelter, AN/GSM-44; (2) modification of AN/MSG-4 Vehicles and Shelters to permit installation of Collective Protection Equipment for Engineering/Service Tests and (3) the fabrication of air leakage kits.

## GENERAL

During this reporting period, effort was devoted primarily to the following items of work:

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GENERAL (Continued)

1. Completion and delivery of the Collective Protection Feasibility and Design Studies for Radar Tracking Station, OA-2952/490; Missile Integration Terminal Equipment, AN/TSQ-58; and Maintenance Shelter, AN/GSM-44, Report #FR 64-11-7, dated 5 February 1964.
2. Preparation of sketches outlining redesign considerations based on ET/ST results. This material was generated for discussion with CRDL personnel in advance of the ADB/CRDL meeting at Fort Bliss, 9 January.
3. Incorporation of certain Value Engineering recommendations and Customer requested ET/ST design changes into the CB Filter Unit, Stowage Box, and Skid. Sketches describing these changes were hand carried to Bigewood Arsenal for review with cognizant CRDL personnel.
4. Inventory of all Collective Protection Equipment utilized during ET/ST into HAC GPP stores.

CUSTOMER COORDINATION

1. On 8 January, HAC representatives L. W. Maples and J. C. Groff met with CRDL personnel. Purpose of this meeting was to prepare CRDL for the 9 January conference with ADB concerning the ET/ST results. Solutions to problems discussed in this prior meeting greatly enhanced the HAC/CRDL position relative to anticipated comments on the Collective Protection Equipment.

Results of the 9 January conference could be summed up by Captain Parker's comment in general that HAC equipment was considered as being very well built. He further stated "The Test Agency gave the equipment a good beating, probably worse than that expected in actual service, but it held up."

ADB recommendations for improvement are being considered by CRDL. HAC is awaiting formal direction on the course of action for implementing corrections or changes.

2. CRDL personnel F. Ort, M. D. Mears, and W. W. Linkous visited HAC Fullerton on 22/23 January to discuss ADB and CRDL recommended changes based on ET/ST and certain Value Engineering improvements. Preliminary estimates were offered to assist CRDL in establishing the required budgets.
3. February 19th HAC personnel J. C. Groff and D. K. Phillips visited with M. D. Mears and F. Ort to review the 400 CFM unit package expanded to include ET/ST changes and selected Value Engineering improvements. CRDL expressed satisfaction with the basic design approach. Final clarification of remaining questions on design details was achieved in the discussion.

STUDY PROGRESS - PHASE III

With the submittal of the RTS, MITE, and AN/GSM-44 Systems Feasibility and Design Study, all study program work has been completed.

#### DESIGN PROGRESS

Preliminary air leak sealing methods and protective entrance attachment designs for the AN/GSS-1 were investigated but curtailed upon receipt of an 18 February Trane Company teletype. Information contained therein indicates the MAC 40 Air Conditioner (tentatively selected for the AN/GSS-1) as undergoing redesign. Collective Protection Equipment design progress for the AN/GSS-1 will be delayed pending CRDL notification of firm air conditioner selection.

#### DRAWING PROGRESS

All Phase II equipment drawing effort has been completed with all data submitted except for the suspended AN/GSS-1 effort.

#### FABRICATION PROGRESS

All Phase II fabrication effort is completed except for the suspended AN/GSS-1 effort.

#### TEST EQUIPMENT

None

#### EQUIPMENT DELIVERIES

All Phase II equipment has been delivered except for the suspended AN/GSS-1 program.

#### MAINTENANCE ENGINEERING

Complete except for the suspended AN/GSS-1 equipment.

#### ELECTRONIC COMPONENT DEVELOPMENT

No electronic components were developed during this reporting period.

#### FINANCIAL SUMMARY

The funds expended, manhours expended, estimated costs for the next reporting period, and the balance of contract funds are shown in the following chart. Dollars shown exclude fee.

January & February 1964		Cumulative Costs Through February		Estimated for March & April	
Man Hours	Total \$ Including Material	Man Hours	Total \$ Including Material	Man Hours	Total \$ Including Material
1,464	\$27,675	85,108	\$1,046,324	2,200	\$35,000
		Contract Cost Funds	\$1,173,613		
		Less Cumulative Costs	1,046,324		
		Balance Remaining	\$ 127,289		

PLANNED ACTIVITY FOR NEXT REPORTING PERIOD

1. Preparation and submittal of a firm statement of work based on discussions held during the 22/23 January meeting for CRDL consideration.
2. Submittal of firm pricing and start of implementation for those items of work selected by CRDL.

HUGHES AIRCRAFT COMPANY  
Ground Systems Group

L. W. Maples  
L. W. Maples  
Project Head